Stormbuster

NATIONAL WEATHER SERVICE ALBANY, NY

Volume 30, Issue 2 Dec 2024

NWS Albany Staff Update

INSIDE THIS ISSUE

In this edition, we will share an interview with new NWS Albany Staff that arrived in June and July of this year. The first interview is with Tim Humphrey the new Science & Operations Officer (SOO) who arrived in mid June from Corpus Christi, TX.

When did you first become interested in Meteorology?
I first became interested in meteorology after my family had to evacuate from our home for the January 1996 Schoharie Creek flood. However, the May 31 1998 tornado outbreak was the event that ultimately led me to decide to become a meteorologist.

Where did you go to college and where did you work before the NWS at Albany?
I received my undergraduate degree in Atmospheric Science from the University at Albany. I did some graduate work at the University of Oklahoma before I joined the NWS in 2014. Prior to joining NWS Albany, I worked at NWS offices in Lake Charles, Louisiana, and Corpus Christi, Texas.

How many years have you worked in the NWS?
I have worked in the National Weather Service for 10 years.

What did you enjoy the most at your previous National Weather Service Offices?
The people and the food!

What is your favorite type of weather?
I've always been fascinated by severe weather. It is what inspired me to be a meteorologist and I have a lot of personal fulfillment when our office has successful severe weather operations.

What are the top 3 historical weather events you recall you have worked?
1. Hurricane Harvey, 2. The February 2021 Texas Winter Weather and Arctic Air Outbreak, 3. Southwest Louisiana Heat Burst of 19 April 2015

What do you do in your spare time?
I enjoy spending my spare time traveling to see a wide variety of sports in person. Inspired by one of my co-workers, I have a bucket list goal of seeing every single NCAA Division 1 baseball team in person. When I'm not going to a sporting event, I enjoy spending time outdoors to go hiking, paddleboarding, skiing, etc.

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What has changed the most since the first day you entered the National Weather Service?
The most significant change since I've joined the NWS has been the launch of the GOES-R satellite series. Today it is easy to take for granted having 5-minute updates to GOES satellite imagery. However, it was not that long ago when we would only receive updated imagery every 15 minutes. The implementation of Global Lightning Mapper imagery with the launch of the GOES-R series has also been a game changer for diagnosing the strength of storms.

If you did not work in the National Weather Service or have a career in meteorology, then what would you do?
It's difficult to imagine in alternate reality where I wouldn't work in the NWS or have a career in meteorology. However, if that were a reality, I could imagine myself working for either NASA or the National Park Service.

Tim Humphrey Science & Operations Officer

Meteorologist Rosemary Webb joined the NWS at Albany from the NWS Great Falls this past July.

When did you first become interested in Meteorology?
My parents would play cassette tapes of thunderstorms and growing up I was always fascinated by thunderstorms and lightning. We had large windows where I could watch storms roll into town. But watching broadcast meteorologists on WNYT and WTEN as well as the weather channel growing up inspired me to pursue studying the weather.

Where did you go to college and where did you work before the NWS at Albany?
I attended SUNY Oswego for 2 years then transferred to Lyndon State College, which is now formally called Vermont State University at Lyndon (There was a previous name change to Northern Vermont University at Lyndon which is where my degree is from but it's still the same campus). During my time at Lyndon, I worked with VTrans providing weather forecasts to them from November to April through the Lyndon Institute of Applied Meteorology. I gained experience in communications and teamwork. I started my career with the National Weather Service at the Great Falls, Montana office. I'm very grateful for the amazing opportunities and dedicated teammates I had there to help me transition to my first full time job and welcome me to the NOAA/NWS team. I was able to gain experience with mountain forecasting, working closely with partners in North Central and Southwest Montana, and strengthen my leadership skills through a NOAA wide program called Foundational Leadership Development Program.

How many years have you worked in the NWS?
2 years and 6 months.

What have you enjoyed the most at the NWS so far?
Meeting our partners has to be number one. As we get to know them, our partnership with them strengthens and we trust each other. Number two is that I feel safe to fail. When a forecast doesn't pan out, trying out a new idea and it doesn't work, or hitting a communication roadblock, the support I receive and understanding that it's okay to make mistakes has been extraordinary. Then we learn from our failures and mistakes and do better the next time or reach our goal.

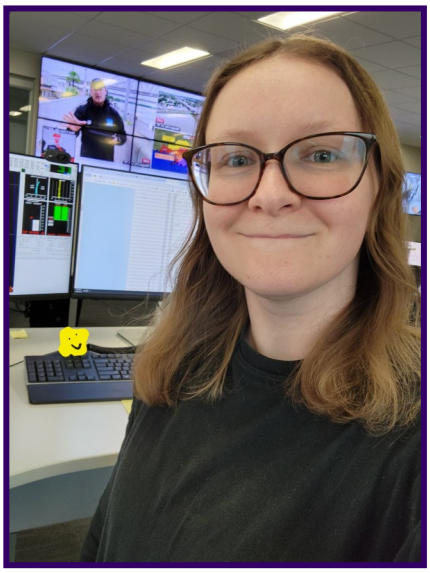
What is your favorite type of weather?
Snow! I feel calm and a sense of peace when watching snowfall. I enjoy winter weather forecasting the most. Communicating the impacts that people can encounter when we could experience a winter storm and discussing with partners the different scenarios that could happen in terms they understand is something I enjoy doing. I also like building snow people and going snowshoeing!

What career aspirations do you have in the National Weather Service?
This is a great question as I am still learning what opportunities exist in our organization and I enjoy learning new things. My current plan is to stay here at NWS Albany for the next 5 to 7 years to continue to support my family, gain more DSS experience, and further expand on my leadership skills. Long term plans, I'll want to explore more of potentially working at a regional operations center, the training center, and/or becoming a meteorologist-in-charge.

What are the top 3 historical weather events you recall you have worked?
I am a young forecaster, so I don't have any historical weather events so far in my career that I have worked. But I can talk about one historical weather event I've experienced as I grew up in the Albany area and really enhanced my favorite weather. March 14, 2017 was a day I will always remember as we had a Nor'easter bring 22 to 24 inches of snow to my hometown and across many locations in the Capital Region. I was home from college for spring break. My dad, sister, and I spent all day shoveling our sidewalks. I took pictures of my street where snow was piled up along the sidewalks, which now pops up on my Facebook timeline as memories every year on that day.

Continued on Page 3

NWS Staff Interviews (cont.)



Do you have any hobbies? What do you do in your spare time?
I enjoy going on nature walks and painting. Anything with arts and crafts is up my alley. I like baking, I once burned a hamburger so cooking is definitely not my thing, but I can bake muffins and cookies. I love watching the New York Mets, Boston Bruins, Buffalo Bills, and when the Olympics are on, badminton during the summer and curling in the winter. I thoroughly enjoy traveling as I want to visit all 50 states, Belgium, and Japan. I visited Australia in 2014 for two weeks and I got to experience so many amazing things. I collect ornaments from each state I visit and I call my Christmas tree, my traveling tree. I love my family and being home now I get to spend more time with them.

What has changed the most since the first day you entered the National Weather Service?
NWS Chat 2.0, SPOT Page, Aviation Weather Center home page, and water.noaa.gov. These webpages have been updated to a more modern and user friendly website and I am so excited for our partners to be using them.

If you did not work in the National Weather Service or have a career in meteorology, then what would you do?
I would be a middle/high school teacher. Either for math (specifically Algebra) or earth science, I had some amazing teachers growing up. They supported me so much that I wanted to do the same when I got older. From helping me get out of my comfort zone to supporting me when I failed, I can't thank them enough for helping me be where I am today. I love helping others and explaining complicated things in simple terms people can understand.

Rosemary Webb Meteorologist

Meteorologist Peter Speck joined the NWS at Albany from the NWS Quad Cities this past July.

When did you first become interested in Meteorology?
It wasn't until I was about 7-9 years old, I believe. I was actually really afraid of thunderstorms when I was extremely young, but then something in me changed and I became extremely interested in why there was lightning, wind, snow, etc. My dad saw this in me and really encouraged me to explore my newfound interest. He also took me to SKYWARN training sessions for NWS Binghamton and out storm chasing in central NY when there was severe weather. The rest is history!

Where did you go to college and where did you work before the NWS at Albany?
I attended SUNY Oswego (2009-2013) for my undergraduate degree (Go Lakers!) and the University of Missouri (2014-2015) for my graduate studies (Go Tigers!). I found my way back to upstate NY and worked in the private sector for marine weather forecasting for several months before joining the NWS in August 2016.

How many years have you worked in the NWS?
This is year #8 for me! Before joining the team at NWS Albany this year I was employed at NWS Quad Cities (Davenport, IA) as a meteorologist. I started there in August 2016, and officially transferred to NWS Albany in June 2024.

What have you enjoyed the most at the NWS so far?
The people, the mission and the relationships we've built across the agency, our partners and with the public. Even with our challenges we always find a way to persevere, and everything is a team effort.

What is your favorite type of weather?
Being from central NY my first love is snow! However, living and working in the Midwest gave me a huge appreciation and love for severe weather (hail, damaging winds and tornadoes).

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NWS Staff Interviews (cont.)

What career aspirations do you have in the National Weather Service?
Right now my aspiration is to become a lead meteorologist. However, I would love to work my way into management as a Science and Operations Officer or Warning Coordination Meteorologist.

What are the top 3 historical weather events you recall you have worked?

1. The Midwest Derecho of August 2020, which produced winds greater than 100 MPH, several tornadoes and widespread damage across Iowa and Illinois

2. Mississippi River Flooding of 2019, where a new all-time record crest was recorded at the Mississippi River in Rock Island, IL.

3. Record cold across the Midwest in January 2019, which saw a new all-time record low in the state of Illinois at Mt. Carroll at -38°F! I also had the opportunity to release the morning weather balloon at the height of this event where the wind chill was approaching -60°F at the time of the launch!

Do you have any hobbies? What do you do in your spare time?
Right now my 3 month old and family are my life outside of the office! Otherwise, I enjoy getting outdoors and walking or running. I love being able to participate in local races or 5ks. My wife is also an avid history buff, so I also find myself frequently visiting museums or historical sites!

What has changed the most since the first day you entered the National Weather Service?
In recent years, the NWS has shifted to providing more Impact-Based Decision Support Services (IDSS) in addition to forecasting and watches/warnings/advisories. This has resulted in more interaction, relationship building and collaborative opportunities with our core partners. It has been an adjustment to our daily operations, but has given me a new perspective on how our forecast information is used and how crucial it is in making decisions that could impact the daily lives of many.

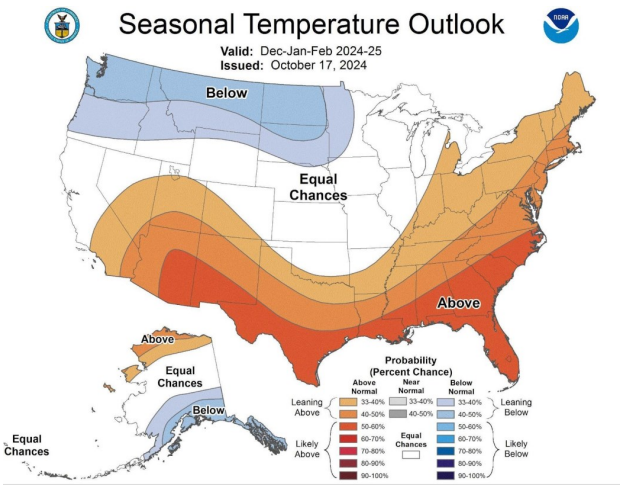
If you did not work in the National Weather Service or have a career in meteorology, then what would you do?
I would definitely be involved with cars in some capacity, likely a mechanic. I also love music, in particular directing choirs, and I could definitely see myself in that role.

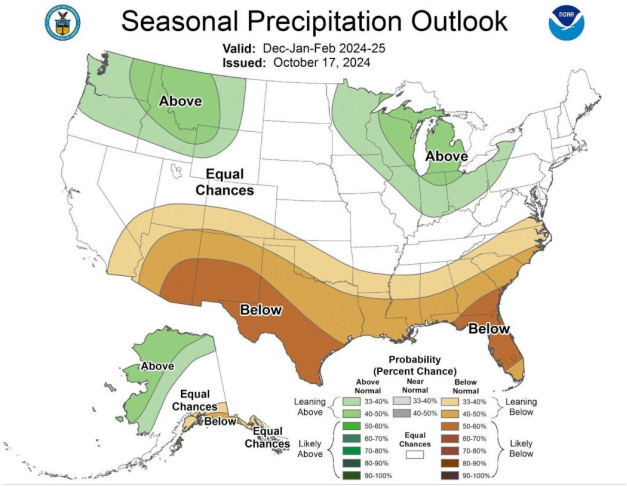
Peter Speck, Meteorologist

Winter (DEC-JAN-FEB) 2024-25 Outlook

NOAA's U.S. Winter Outlook was released on October 17, 2024 by the Climate Prediction Center - a division of the National Weather Service.

Here's the big picture:





Warmer-than-average temperatures are favored from the southern tier of the U.S. to the eastern Great lakes, eastern seaboard, New England and northern Alaska.

The greatest chance for warmer-than-average conditions are along the Gulf Coast into the Southwest.

Below-normal temperatures are favored across southern Alaska, the Pacific Northwest and High Plains.

Wetter-than-average conditions are most likely in the Great Lakes, Pacific Northwest and western Alaska

The greatest chances for drier-than-average conditions are forecast in the Gulf of Mexico into Texas and New Mexico.

The remainder of the U.S. falls into the category of equal chances for below-, near-, or above-average seasonal total precipitation.

There is a focus on El Niño-Southern Oscillation (ENSO) when making seasonal outlooks as it is one of the most important climate phenomena on Earth due to its ability to change the global atmospheric circulation, which in turn, influences temperature and precipitation patterns across the globe. ENSO's arrival can often be predicted many seasons in advance of its strongest impacts on weather and climate. La Niña is a cooling of the ocean surface, or below-average sea surface temperatures, in the central and eastern tropical Pacific Ocean. El Niño is a warming of the ocean surface, or above-average sea surface temperatures, in the central and eastern tropical Pacific Ocean.

There is a ~72% chance of La Niña during the Northern Hemisphere Winter (December-January-February) 2024-25.

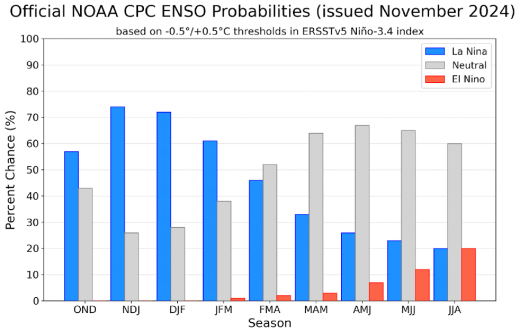


Figure 7. Official ENSO probabilities for the Niño 3.4 sea surface temperature index (5°N-5°S, 120°W-170°W). Figure updated 14 November 2024.

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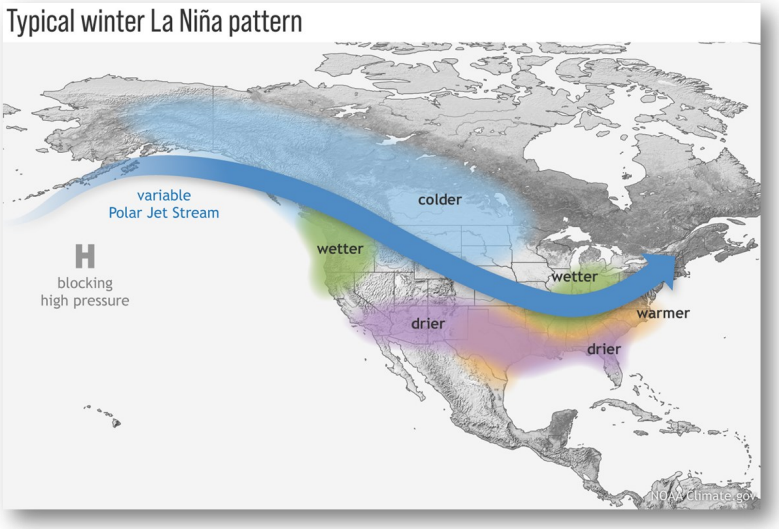
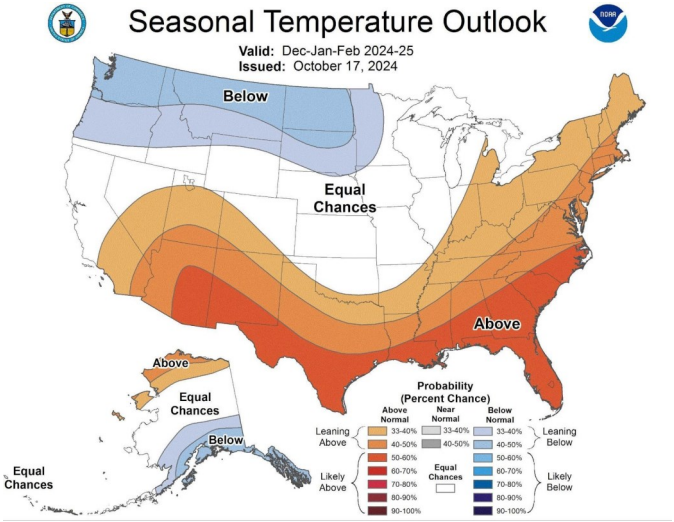
Winter Outlook (Dec-Jan-Feb) 2024-25 (cont'd)

During La Niña, the Pacific jet stream often meanders high into the North Pacific. Southern and interior Alaska and the Pacific Northwest tend to be cooler and wetter than average, and the southern tier of U.S. states, from California to the Carolinas, tends to be warmer and drier than average. Farther north, the Ohio and Upper Mississippi River Valleys may be wetter than usual.



One or more of these climate patterns have occurred during many La Niña events in the past. That doesn't mean that all of these impacts happen during every episode. Every event is somewhat different. In other words, the influence of La Niña on U.S. winter climate is a matter of probability, not certainty. By modifying the jet streams, La Niña can affect temperature and precipitation across the United States and other parts of the world. The influence on the U.S. is strongest during the winter (December-January-February), but it may linger into early spring.

So what does this mean for Upstate New York and Western New England? While temperatures may lead above average in the current outlook, there is not a strong signal in the pattern for precipitation for our area this winter (December-January-February). Note: The outlooks don't predict how much above or below temperatures and precipitation may be for the outlook period.



There is low to medium favorability (33-50%) toward above normal temperatures across all of eastern New York and western New England, with the higher end of the probabilities favored across the mid-Hudson Valley into northwest Connecticut and western Massachusetts.

The temperature outlook does not predict individual arctic outbreaks, which are still possible.

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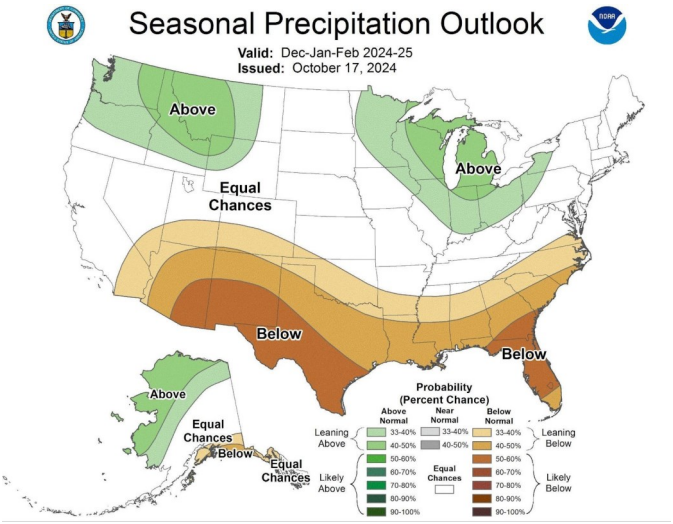
Winter Outlook (Dec-Jan-Feb) 2024-25 (cont'd)



There is an equal chance of either above or below normal precipitation across eastern New York and western New England.

The precipitation outlook represents rain, snow, sleet and freezing rain events.

It does not represent the number of storms or their intensity.

Peter Speck, Meteorologist

Winter Skywarn Classes

Winter Skywarn Spotter classes continue until February 2025. The last Basic Skywarn class is virtually on January 9th from 7-9 pm. Two advanced winter skywarn classes will be January 29th from 1130 am to 1 pm at the UAlbany ETEC Building and also a virtual session February 6th from 7 – 9 pm. The January 29th section is closed to public. In order to attend an advanced session, one would have had to partake in a previous basic course either this year or in previous years. Some topics covered in the Advanced Winter Skywarn session will be: mesoscale banding/frontogenesis, dual-polarization radar/products and the National Weather Service timeline of operations for a winter weather event. To register for a session one can go to web-link: https://www.weather.gov/aly/skywarn#fragment-2b

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WINTER

Brett Rathbun and Thomas Wasula, Meteorologists

Winter Driving Safety

Winter can be a dangerous time of the year for drivers. Most winter weather related deaths occur in motor vehicle accidents. In fact, across the U.S., the average icy road fatality count is nearly 4 times the total number of deaths from **all** other weather hazards **combined**.

Icy road conditions may only be present a handful of times during a winter yet they produce high accident rates in short amounts of time. According to statistics, the fewer road icing events that occur in an area, the greater the rate of fatalities per event. It appears that people need practice driving on snow and ice.

In winter, visibility can be reduced to near zero by wintry precipitation and/or fog. Falling snow or freezing rain can make it hard for windshield wipers and defrosters to clear windows, and vehicle lights can be coated with ice, slush or snow which reduces their effectiveness.

In winter, day length is reduced significantly and much more commuting time is done in darkness or near darkness. Clear your car of snow and ice before you drive. Make sure all windows, headlights, tail lights and mirrors are clear.

When driving, if roads are snow covered or icy, slow down and drive carefully. Vehicle stopping distances are increased 2-6 times on snow and ice. Keep extra distance between you and other vehicles. Turn on your headlights while driving in rain or snow. Allow extra time to get to your destination.

As a motorist, you are far more likely to have an accident when driving during an icy road condition than an equivalent amount of time driving during rainy or dry weather. If possible, avoid travel during winter storms. If you have the option to telework or work from home, snowy or icy days are good days to do so.

Be alert for rapidly changing road conditions. Blowing snow, lake effect snow bands, snow squalls and black ice can cause rapidly deteriorating road conditions.

Blowing snow is wind driven snow that reduces visibility. Blowing snow may be falling snow and or snow on the ground picked up by the wind. Blowing snow may produce icy patches on otherwise dry roads.

Lake effect snows often occur in the late autumn and winter downwind of the great lakes when cold arctic air sweeps across the relatively warm waters of the lakes. Snow bands will typically form over and along the lee shores of the lakes and move downwind. These bands can result in locally heavy snow with reduced visibilities and icy roads.

Snow squalls are brief intense snow showers accompanied by strong gusty winds. Similar to summertime thunderstorms, snow squalls often happen on mostly fair days.

In a matter of minutes, a pleasant winter day with sunny skies can change to whiteout conditions. They often produce instantaneous snow accumulation and blinding visibility. Snow squalls are responsible for many vehicle pile ups on interstate highways.

Black ice is a thin film of ice on roads or sidewalks which is difficult to see or looks wet, but is actually very slippery and dangerous to drive and walk on. Black ice forms at night when radiational cooling refreezes water on roads or sidewalks, and can form when air temperatures are above freezing if skies clear and the ground is cold or frozen.

We hope this winter driving information will help you prepare for and stay safe while driving this winter. Remember to scan your surroundings, make enough space for others and anticipate danger to stay safe on the road.

Steve DiRienzo, Warning Coordination Meteorologist

Aurora Borealis—The Northern Lights

(**source: https://www.swpc.noaa.gov/**)

The Aurora Borealis or Northern Lights are the natural light display in the earth's sky at night in the Northern Hemisphere. In the Southern Hemisphere, it is called the Aurora Australis or Southern Lights. The auroras are most commonly seen near the Arctic and Antarctic Circles and from 66.5°N/°S of the earth's equator. The Aurora Borealis was named by the astronomer Galileo Galilei in the early 17th century. Aurora was the Roman goddess of dawn and Boreas was the Greek term for north wind. The earth's magnetic field interacts with charged particles from the sun. These charged particles from the sun are called the solar wind. The aurora is caused by the electrons (negative charged particles) colliding in the upper atmosphere of the earth. Protons (positive charged particles) are fainter and not easily seen by natural human vision. The electrons rapidly move through the upper atmosphere in the magnetosphere down the polar or high latitudes and they collide with nitrogen and oxygen atoms and molecules. The electrons transfer large amounts of energy into the atmosphere during the collisions. The atoms and molecules become "excited", increasing their energy states. When the energy levels lower or become less "excited" with the atoms and molecules, then they release energy as electromagnetic light. The kinetic energy of particles gets transformed into visible light. It is comparable to how a neon light bulb works. Aurora's form high in the atmosphere at 80 kilometers (50 miles) to 500 kilometers (310 miles) on average.

The earth's magnetic field is one of the keys to the viewing of aurora. The invisible magnetic field of the earth directs the electrons to form two ovals of the aurora nearly centered over the two magnetic poles. In intense geomagnetic storms the ovals expand equatorward away from the poles and can be seen across the United States. The shapes of the aurora can vary. The aurora borealis can appear as swirling, bright colorful ribbons that can be greenish blue or pinkish-purple in appearance. These vibrant and dynamic displays of bright lights can also appear as curtains, spirals, rays and flickers covering the nocturnal. The rays can form arcs that stretch across the horizon (**Figure 1**). Overnight or around midnight the arcs from the aurora can stretch, sway and twist as if wind is blowing shades or curtains of light. The lights/arcs can vary bright and vivid and then disappear. When the aurora hits its brightest point and fills the whole sky it is at its peak and this is called an auroral substorm. In the early morning the aurora can look more like clouds. The clouds or patches can flicker or blink on or off during the early morning hours before completely disappearing with the sunrise to the east. A viewer needs the right tropospheric conditions with no clouds in your viewing area.

Figure 1: ~1 am October 8, 2024 from the roof of ETEC (Image credit: Joe Villani)

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Aurora Borealis—The Northern Lights (cont.)

Strong geomagnetic storms produce the auroras that can be seen further away from the polar latitudes in the northern and southern hemispheres. The Planetary K-index is calculated by NOAA's Space Weather Center to determine the severity of the global magnetic disturbances in near-Earth space. The K-index is a 3-hour quasi-logarithmic local index of geomagnetic activity related to a quiet-day curve for a recording site. The range for the K-index is 0 (quiet or nothing) to 9 (severely disturbed). The K-index measures the most disturbed component (Kp). The Kp is an index based on the average of weighted K-indices at 13 ground magnetic field observational sites. The Kp is based on the range of the magnetic field variation with 3-hour intervals that is caused by phenomena other than the diurnal variation and the long-term component of the storm time variations. Two large events occurred on May 10-12, 2024 and October 8-11, 2024 and the Aurora Borealis – Northern Lights were viewed in the mid-latitudes and even near the edge of the tropics. The Capital Region of NY, where the clouds thinned the most ,saw the aurora well (**Figure 2**). The sunspot cycle is nearing a peak. The cycle is 11 years and it began in December 2019 and will reach its peak in 2025. Studies have shown increased sunspot activity or when a peak is reached or it starts to move away from its peak that the aurora's or geomagnetic storms can increase. Be on the lookout for more in the future and find the latest information at NOAA's Space Weather Center.

Figure 2: ~10 pm October 10, 2024 Aurora from Ballston Spa, NY (Image credit: Derek Gould)

- Thomas Wasula, Lead Meteorologist

Word Search

Winter Weather

I I N O E W A G U P B L A C K I C E R M
N C O A O F A J P I M B C L J E X K W B
A E C T L X R V S N T F L O U C U T U U
D P Q Q F B Q J C N Q M C I L K L O U G
S E C X F L E N F I O T W N Z P L W L U
N L S Y H R X R O Z C W B A B Z S P U I
O L H Z C W E H T R I E F B V C A Y K U
W E Y F G L R E R A E J S L D G O R O G
S T E K R K O B Z M C A O T A T C Z D W
Q S N E A P U G F I U L S N O K Q E T I
U X J A U D O D E L N S I T A R E Q H N
A I C K P U N L C N U G C P E E M I U D
L C K A E G O B A R E R R A P R J K N C
L E L S L Q B X V R G S R A Z E H J D H
Y J Q P S C T B J C V M I I I T R C E I
X A U P S L O P E S N O W S E N C H R L
K M Y R E U E N P X P Y R B Q S R W S L
J S J H Y A V E N F S C Q T Q D W L N P
X N D G G N M H T V A Q V H E N C D O L
A N U C Q M J H R Q Q O H F K X L R W U

Alberta Clipper	Cyclogenesis	Freezing Rain
Polar Vortex	Upslope Snow	Thundersnow
Ice Pellets	Wind Chill	Flurries
Snow Squall	Snow Flake	Blizzard
Noreaster	Black Ice	Ice Storm
Sleet	Graupel	Ice Jam

- Thomas Wasula, Lead Meteorologist

Word Scramble

Space Weather

RURAAO _____

EGIGMOTNECA MTSOR _____

STOUNPS _____

ALSOR DNWI _____

CAONOR _____

CCSIOM YRA _____

PALSMA _____

IEREOHEHSPL _____

SROLA ALERF _____

PNEIRCNOESM _____

- Thomas Wasula, Lead Meteorologist

Word Search Answer Key

Winter Weather

Alberta Clipper	Cyclogenesis	Freezing Rain
Polar Vortex	Upslope Snow	Thundersnow
Ice Pellets	Wind Chill	Flurries
Snow Squall	Snow Flake	Blizzard
Noreaster	Black Ice	Ice Storm
Sleet	Graupel	Ice Jam

- Thomas Wasula, Lead Meteorologist

Word Scramble Answer Key

Space Weather

RURAAO	AURORA
EGIGMOTNECA MTSOR	GEOMAGNETIC STORM
STOUNPS	SUNSPOT
ALSOR DNWI	SOLAR WIND
CAONOR	CORONA
CCSIOM YRA	COSMIC RAY
PALSMA	PLASMA
IEREOHEHSPL	HELIOSPHERE
SROLA ALERF	SOLAR FLARE
PNEIRCNOESM	PROMINENCES

Thomas Wasula, Lead Meteorologist

NATIONAL WEATHER SERVICE
Albany, NY
1400 Washington Ave
Albany, NY 12222
(518) 626-7573
OFFICE WEBSITE
WWW.WEATHER.GOV/ALY

Editor: Thomas A. Wasula
Editor: Christina Speciale

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